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Environmental
Cleanup Office



5129 N. Shirley St. Suite 100 | Ruston, WA 98407

January 15, 2009

Mr. Kevin L. Rochlin
Remedial Project Manager
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, ECL-111
Seattle, WA 98101

RE: Monthly Report: No. 163, December 2009
Operable Unit No. 02 - Asarco Tacoma Smelter Site

Dear Mr. Rochlin:

Point Ruston is submitting this monthly report per the requirements of paragraph 48 of the Consent Decree for the above referenced site. Point Ruston will continue to provide monthly reports to EPA for the site organized in the same manner as previous reports prepared by Asarco to follow item (a) through (g) of this paragraph.

If you have any questions, please call me.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Pilcher".

Eric Pilcher, P.E.
Project Coordinator

Attachment (2 copies)

cc: Chung Ki Yee - Washington Department of Ecology
Evan Griffiths - CH2MHill (2 copies)
Leslie Ann Rose - Citizens for a Healthy Bay
Karen Pickett - ASARCO

USEPA SF



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Monthly Report 163, December 2009
Operable Unit 02
Asarco Tacoma Smelter Site

A. Actions taken to achieve compliance with the Consent Decree during the previous month.

1. Met with EPA on December 4th and 18th.
2. Continued weekly site- maintenance logs (see attached).
3. Maintained clean work area and road.
4. Remedial Action activities continued.
5. Training activities include the following:
 - Site specific Safety Orientation (Clean Zone) was held for personnel of the following companies:
 - i. (none)
 - Site Specific Safety Orientation (Exclusion Zone) was held for personnel of the following companies:
 - i. (1) Otto Rosenau
 - ii. (3) Olson Brothers
 - iii. (4) City of Tacoma

B. Summary of sampling, tests, and all other data received or generated by Point Ruston in the previous month.

1. Outfall activities including the following:

Section 2.3 of the Final Statement of Work (SOW) for Remedial Design and Remedial Action – Exhibit F to the Second Amendment requires Point Ruston to continue outfall monitoring. Outfalls will be monitored to determine if the monthly average surface water outfall concentrations for arsenic, copper, and zinc exceed 0.5 ppm at the North and South site outfalls until they are abandoned.

Weekly composite samples will be collected at each outfall during the construction season. During the winter season, outfall samples will be collected every other month. Asarco began the following schedule in May of 2003 which Point Ruston will continue to implement: weekly composite samples will be collected from May-October, and in December, February, and April.

In addition to the North and South Outfalls, Point Ruston resumed monitoring of an existing, upland station near the southeastern end of the car tunnel. This monitoring station is designated OSW2. Samples were collected by Point Ruston on December 7th, 14th, 21st, and 28th. There were no exceedances.

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2. Point Ruston collects OCF leachate in a 5,000 gallon polyethylene tank for offsite shipment and disposal. LCRS and LDCRS volumes are monitored weekly in accordance with the draft OCF OMMP. LCRS volumes currently average approximately 117 gallons per day on the LCRS (see attached correspondence and data). 4,913 gallons were pumped and shipped on Decmeber 4th. As previously reported in Monthly Report 162, a sample was collected on November 19th indicating 5.3ppm. Leachate was sampled again on December 28th. Results from the sample are attached (5.7ppm).
3. Point Ruston performs perimeter air monitoring at three locations on the site: NW Corner of OCF, OCF Vault #1 (upper vault), South Gate. Results for samples collected from November 23rd through December 24th are attached. There were no exceedances.

Please note that no monitoring was performed on December 7th for the OCF NW and South Gate locations due to prolonged maintenance and calibration. On December 14th, Tacoma Power temporarily turned off power to the OCF Vault location, resulting in a reduced sampling time period. No monitoring occurred from December 25th through January 3rd as no work was performed over the holidays.

Wilson Effective Compliance performed an audit of the Hi-Vols on December 22nd. A copy of the audit report is attached.

4. Point Ruston performs personal air monitoring in accordance with WAC 296-848-20060(1) & WAC 296-155-17609(1)(a) to determine if the airborne concentrations of arsenic and lead exceed the PEL. No personal air monitoring was performed in December.

C. *Work Plans and other deliverables completed and submitted during the previous month.*

- Plans and Documents included the following:
 - Point Ruston submitted revised roadway design plans for work within both the City of Tacoma and Town of Ruston on December 2nd. Comments were received from Tacoma on December 22nd and 23rd and from Ruston on December 28th and 30th.
 - Approved plans will supersede those included in Appendix B of the Master Infrastructure CMP.
 - Point Ruston submitted plans for Building 7a (Parcel F) to the City of Tacoma on December 7th.
 - Point Ruston submitted Construction Management Plan for Phase I (Parcels E & F) to EPA on December 18th.

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Asarco Tacoma Smelter Site

- Remedial Action included the following tasks:
 - OCF construction activities:
 - Maintained leachate collection system.
 - Stack Hill construction activities:
 - Maintained erosion and surface water controls; specifically on Commercial Street cul-de-sac area
 - Continued home construction
 - Maintained site perimeter fence and signage at the north end of Stack Hill.
 - Site-wide remediation/redevelopment activities:
 - Continued surface water controls
 - Maintained haul roads and stockpiles onsite
 - Maintained erosion and surface water controls
 - Continued construction of Sanitary and Storm Sewer within Ruston Way right-of-way.

D. *Actions scheduled for the next six weeks.*

1. Continue construction of public infrastructure
2. Address any new or remaining comments on CMP – Master Infrastructure and Stack Hill Face
3. Address comments on the Upland OMMP
4. Submit Revision 5 of the Construction Health and Safety Plan together with an updated Spanish translation
5. Submit a Sequencing of Development and Occupancy and Temporary Cap Plan
6. Submit Point Ruston CC&Rs
7. Consolidate PA documents as relevant to current RA plan
8. Meet with Tacoma Metro Parks to discuss the RA for the slag peninsula

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Operable Unit 02
Asarco Tacoma Smelter Site

9. The following Remedial Action tasks are planned to continue:

RA Monitoring:

- Outfall sampling (weekly composite samples) during scheduled months
- Air monitoring during remedial action activities

OCF OMMP activities:

- Continue collection of leachate for offsite disposal
- Continue monitoring of leachate volumes

Stack Hill construction activities:

- Erosion controls and site maintenance
- Continue home construction
- Begin face cap installation

Site-wide construction activities:

- Continue surface water controls
- Maintain roads and stockpiles onsite
- Maintain erosion controls
- Construction activities for mass grading and Master Infrastructure
- Installation of deep Public Storm Sewer main in Ruston Way, Private on-site Storm Sewer main and Public Sanitary Sewer main.

E. Percentage completion, unresolved delays encountered or anticipated that may affect schedule, and efforts to mitigate delays.

1. Point Ruston is continuing to work with the City of Tacoma & Town of Ruston to secure permits associated with the Master Infrastructure CMP.
2. Point Ruston is coordinating with BNSF and Domestic Realty to secure grade, fill, access and utility rights upon property adjacent to Ruston Way.
3. Shoreline Substantial Development Permits (Tacoma and Ruston) and Conditional Use Permit (Ruston) have been approved in both municipalities.
 - a. An appeal of the city of Tacoma SSDP/CUP has been filed to the State Shoreline Hearing Board. The hearing has been scheduled for February 1st.
 - b. All appeals against the Town of Ruston shoreline permit(s) have been concluded.
4. Dock Removal: Point Ruston and DNR have agreed to solicit bids for the project by February, 2010.

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- F. Modifications to work plans or schedules proposed to or approved by EPA.*
1. The Second Amendment to the Consent Decree was finalized and the sale of the property to Point Ruston LLC completed on October 31, 2006.
- G. Activities undertaken to support Community Relations Plan during the previous month and planned for the next four weeks.*
1. Point Ruston is working with the Town of Ruston and City of Tacoma on development plans which incorporate remediation components for the site.
 2. Point Ruston is working with MetroParks to incorporate the capping component into the Peninsula Park design, and is in talks to establish a Memorandum of Agreement to engage in design consultation for this site.
 3. Point Ruston will meet with the Town of Ruston, City of Tacoma and MetroParks to address operation, maintenance, and monitoring issues at the site.

Point
Ruston

Weekly Site Inspection Report No. 2009-1129
 Week of 11/29 - 12/5, 2009 Inspector

Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION		NEED REPAIR?	COMMENTS/OBSERVATIONS
Gates:				
North (electric)	(G)	F	P	Y (N)
South (electric)	(G)	F	P	Y (N)
Pond	(G)	F	P	Y (N)
Peninsula	(G)	F	P	Y (N)
54 TH (Other) Electric	(G)	F	P	Y (N)
Signage:				
Gates	(G)	F	P	Y (N)
Perimeter	(G)	F	P	Y (N)
Safety	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Public Streets:				
Ruston Way	(G)	F	P	Y (N) CLOSED - UNDER CONSTRUCTION
51 st & Gallagher	(G)	F	P	Y (N) CLOSED - NO TRAFFIC
Stack Hill	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
BMPs:				
Berms	(G)	F	P	Y (N)
Waddles	(G)	F	P	Y (N)
Silt Fence	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Strom drains clean:				
Lower Site	(G)	F	P	Y (N)
Stack Hill	(G)	F	P	Y (N)
Stockpiles:				
Envirotac II	(G)	F	P	Y (N)
Plastic	(G)	F	P	Y (N)
Packed	(G)	F	P	Y (N)
Grass	(G)	F	P	Y (N)
Dust:				
Traffic areas	(G)	F	P	Y (N)
Excavation area	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Fencing:				
Site Perimeter	(G)	F	P	Y (N)
Zone Separation	(G)	F	P	Y (N)
(Other)	G	F	P	Y N

Weekly Site Inspection Report No. 2009-1129
Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION			NEED REPAIR?	COMMENTS/OBSERVATIONS
Docks: Barriers Signs (Other)	G	F	P	Y	N
	G	F	P	Y	N
	G	F	P	Y	N
Cameras: <u>STACK HILL</u> <u>LOWER SITE</u>	G	F	P	Y	N
	G	F	P	Y	N
	G	F	P	Y	N
Health & Safety Plans: Site Superintendent Construction Super. Other					
	G	F	P	Y	N
	G	F	P	Y	N
	G	F	P	Y	N

G=Good F=Fair P=Poor Y=Yes N=No

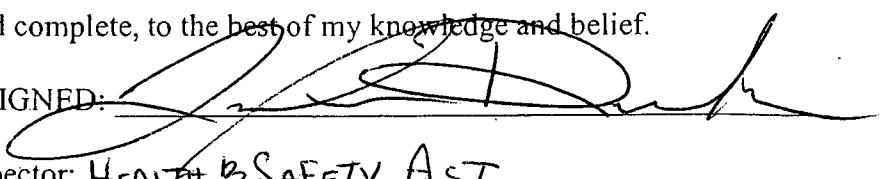
Misc. notes:

WEATHER:

Day of Week	Summary of Weather Conditions
Sunday 29	46/54 SW WINDS 7 mph/GUST 10 mph, NO PRECIPITATION
Monday 30	45/54 SSW WIND 6 mph/GUST 13 mph, PRECID. LATE EVE 0.01
Tuesday 1/1	41/45 NNE WIND 6 mph/GUST 10 mph, NO PRECIPITATION
Wednesday 2	35/44 NNE WIND 8 mph/GUST 12 mph, NO PRECIPITATION
Thursday 3	30/43 S WIND 4 mph/GUST 6 mph, NO PRECIPITATION
Friday 4	33/39 NNE WIND 4 mph/GUST 6 mph, NO PRECIPITATION
Saturday 5	31/40 NNE WIND 5 mph/GUST 10 mph, NO PRECIPITATION

I certify that this report is true, accurate and complete, to the best of my knowledge and belief.

DATE: 12/7/09

SIGNED: 

Title/Qualification of Inspector: HEALTH & SAFETY AST.

Point
Ruston

Weekly Site Inspection Report No. 2009-1206
 Week of 12/16 - 12/20, 2009

Inspector Tim Ruston

Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION		NEED REPAIR?	COMMENTS/OBSERVATIONS
Gates:				
North (electric)	(G)	F	P	Y (N)
South (electric)	(G)	F	P	Y (N)
Pond	(G)	F	P	Y (N)
Peninsula	(G)	F	P	Y (N)
54th (Other) ELECT	(G)	F	P	Y (N)
Signage:				
Gates	(G)	F	P	Y (N)
Perimeter	(G)	F	P	Y (N)
Safety	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Public Streets:				
Ruston Way	(G)	F	P	Y (N) CLOSED - UNDER CONSTRUCTION
51st & Gallagher	(G)	F	P	Y (N) CLOSED - NO TRAFFIC
Stack Hill	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
BMPs:				
Berms	(G)	F	P	Y (N)
Waddles	(G)	F	P	Y (N)
Silt Fence	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Strom drains clean:				
Lower Site	(G)	F	P	Y (N)
Stack Hill	(G)	F	P	Y (N)
Stockpiles:				(SEE MISC. NOTES)
Envirotac II	(G)	F	P	Y (N)
Plastic	(G)	F	P	Y (N)
Packed	(G)	F	P	Y (N)
Grass	(G)	F	P	Y (N)
Dust:				
Traffic areas	(G)	F	P	(Y) N (SEE MISC. NOTES)
Excavation area	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Fencing:				
Site Perimeter	(G)	F	P	Y (N)
Zone Separation	(G)	F	P	Y (N)
(Other)	G	F	P	Y N

Weekly Site Inspection Report No. 2009-1206
Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION			NEED REPAIR?	COMMENTS/OBSERVATIONS
Docks:					
Barriers	(G)	F	P	Y	(N)
Signs (Other)	(G)	F	P	Y	(N)
	G	F	P	Y	N
Cameras:					
STACK HILL	(G)	F	P	Y	(N)
LOWER SITE	G	F	(P)	(Y)	N
	G	F	P	Y	N
Health & Safety Plans:					
Site Superintendent	G	F	P	(Y)	N <i>U.S NEEDED</i>
Construction Super.	G	F	P	(Y)	N <i>U.S NEEDED</i>
Other	G	F	P	Y	N

G=Good F=Fair P=Poor Y=Yes N=No

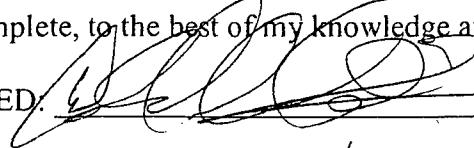
Misc. notes: 12/7/09 DRY-FROZEN CONDITIONS ALONG WITH HIGH WINDS CREATED SEVERAL DUST PLUMES FROM TRAFFIC ON CLEAN ROAD ALONG SHORELINE NEAR THE SOUTH OUTFALL. ORDERED WORKERS TO MINIMIZE TRAFFIC, SLOW DOWN, & ADD WATER. THERE WERE SEVERAL WINDGUSTS THAT STIRRED UP DUST IN GRADED AREAS OF THE SITE THAT WERE SPARSLY VEGETATED.

WEATHER:

Day of Week	Summary of Weather Conditions
Sunday 6	27/36 NE WIND 10 mph/GUST 15 mph, NO PRECIPITATION
Monday 7	24/29 E WIND 8 mph/GUST 14 mph, NO PRECIPITATION
Tuesday 8	18/30 SE WIND 2 mph/GUST 4 mph, NO PRECIPITATION
Wednesday 9	17/30 SW WIND 4 mph/GUST 5 mph, NO PRECIPITATION
Thursday 10	17/33 SW WIND 3 mph/GUST 5 mph, NO PRECIPITATION
Friday 11	21/35 NE WIND 4.5 mph/GUST 2.5 mph, NO PRECIPITATION
Saturday 12	24/37 NE WIND 2 mph/GUST 5 mph, NO PRECIPITATION

I certify that this report is true, accurate and complete, to the best of my knowledge and belief.

DATE: 12/14/09

SIGNED: 

Title/Qualification of Inspector: CONSTRUCTION OVERSIGHT / HEALTH & SAFETY OFFICER

*Point
Ruston*

Weekly Site Inspection Report No. 2009 - 1213
 Week of 12/13 - 19, 2009 Inspector Tim RUSHER

Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION		NEED REPAIR?	COMMENTS/OBSERVATIONS
Gates:				
North (electric)	(G)	F	P	Y (N)
South (electric)	(G)	F	P	Y (N)
Pond	(G)	F	P	Y (N)
Peninsula	(G)	F	P	Y (N)
54m (Other) ELECT	(G)	F	P	Y (N)
Signage:				
Gates	(G)	F	P	Y (N)
Perimeter	(G)	F	P	Y (N)
Safety	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Public Streets:				
Ruston Way	(G)	F	P	Y (N) CLOSED FOR CONSTRUCTION
51 st & Gallagher	(G)	F	P	Y (N) CLOSED
Stack Hill	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
BMPs:				
Berms	(G)	F	P	Y (N)
Waddles	(G)	F	P	Y (N)
Silt Fence	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Strom drains clean:				
Lower Site	(G)	F	P	Y (N)
Stack Hill	(G)	F	P	Y (N)
Stockpiles:				
Envirotac II	(G)	F	P	Y (N)
Plastic	(G)	F	P	Y (N)
Packed	(G)	F	P	Y (N)
Grass	(G)	F	P	Y (N)
Dust:				
Traffic areas	(G)	F	P	Y (N)
Excavation area	(G)	F	P	Y (N)
(Other)	G	F	P	Y N
Fencing:				
Site Perimeter	(G)	F	P	Y (N)
Zone Separation	(G)	F	P	Y (N)
(Other)	G	F	P	Y N

Weekly Site Inspection Report No. 2009-1213
Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION			NEED REPAIR?	COMMENTS/OBSERVATIONS
Docks:					
Barriers	(G)	F	P	Y (N)	
Signs	(G)	F	P	Y (N)	
(Other)	G	F	P	Y N	
Cameras:					
STACK LINE	(G)	F	P	Y (N)	
LOWERSITE	G	F	(P) (Y)	N	
	G	F	P	Y N	
Health & Safety Plans:					
Site Superintendent	G	F	P (Y)	N	V. 5
Construction Super.	G	F	P (Y)	N	
Other	G	F	P	Y N	

G=Good F=Fair P=Poor Y=Yes N=No

Misc. notes:

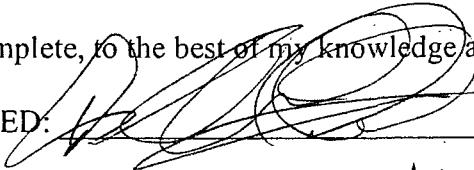
RUSTON WAY - GALLAGHER WAY - 51ST STREET CLOSED FROM
49TH ST. TO SHIRLEY ST.

WEATHER:

Day of Week	Summary of Weather Conditions
Sunday 13	28/37 SW WIND 5 mph/GUST 10 mph, NO PRECIPITATION
Monday 14	36/42 SW WIND 2 mph/GUST 6 mph, PRECIP EVE 0.16"
Tuesday 15	39/49 SW WIND 4 mph/GUST 8 mph, PRECIP SCATTERED 0.08"
Wednesday 16	45/54 SSW WIND 8 mph/GUST 12 mph, PRECIP MORN 0.3" AFTERNOON
Thursday 17	41/50 SW WIND 4 mph/GUST 8 mph, NO PRECIPITATION
Friday 18	42/53 SW WIND 3 mph/GUST 6 mph, NO PRECIPITATION
Saturday 19	45/48 NE WIND 4 mph/GUST 6 mph, PRECIP SCATTERED 0.08"

I certify that this report is true, accurate and complete, to the best of my knowledge and belief.

DATE: 12/21/09

SIGNED: 

Tim R.

Title/Qualification of Inspector: CONSTRUCTION OVERSIGHT / HEALTH & SAFETY

Point
Ruston

Weekly Site Inspection Report No. 2009-1228
 Week of 12/20 - 26, 2009 Inspector Tim RUSHER

Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION		NEED REPAIR?	COMMENTS/OBSERVATIONS
Gates:				
51 st North (electric)	(G)	F	P Y (N)	
South (electric)	(G)	F	P Y (N)	
Pond	(G)	F	P Y (N)	
Peninsula	(G)	F	P Y (N)	
54 th (Other) ELEC	(G)	F	P Y (N)	
Signage:				
Gates	(G)	F	P Y (N)	
Perimeter	(G)	F	P Y (N)	
Safety	(G)	F	P Y (N)	
(Other)	(X)	F	P Y (N)	
Public Streets:				
Ruston Way	(G)	F	P Y (N)	CLEANED BEFORE & AFTER PAVING 12/23
51 st & Gallagher	(G)	F	P Y (N)	
Stack Hill	(G)	F	P Y (N)	
(Other)	(X)	F	P Y (N)	
BMPs:				
Berms	(G)	F	P Y (N)	
Waddles	(G)	F	P Y (N)	
Silt Fence	(G)	F	P Y (N)	
(Other)	(X)	F	P Y (N)	
Strom drains clean:				
Lower Site	(G)	F	P Y (N)	
Stack Hill	(G)	F	P Y (N)	
Stockpiles:				
Envirotac II	(G)	F	P Y (N)	
Plastic	(G)	F	P Y (N)	
Packed	(G)	F	P Y (N)	
Grass	(G)	F	P Y (N)	
Dust:				
Traffic areas	(G)	F	P Y (N)	
Excavation area	(G)	F	P Y (N)	
(Other)	(X)	F	P Y (N)	
Fencing:				
Site Perimeter	(G)	F	P Y (N)	
Zone Separation	(G)	F	P Y (N)	
(Other)	(X)	F	P Y (N)	

Weekly Site Inspection Report No. 2009-1220
Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION			NEED REPAIR?	COMMENTS/OBSERVATIONS
Docks:					
Barriers	(G)	F	P	Y (N)	
Signs	(G)	F	P	Y (N)	
(Other)	G	F	P	Y N	
Cameras:					
Stack Hse	(G)	F	P	Y (N)	
Lowersite	G	F	(P) (Y)	N	LIMITED POWER @ REMOTE LOCATIONS
	G	F	P	Y N	
Health & Safety Plans:					
Site Superintendent	G (F)	P	(Y) N		V.S PENDING
Construction Super.	G (F)	P	(Y) N		
Other	G	F	P	Y N	

G=Good F=Fair P=Poor Y=Yes N=No

Misc. notes: No SITE ACTIVITY 12/25 + 12/26
 RUSTON WAY + TUNNEL CLOSED THROUGH 10:00 12/29.

12/22/09 : HI-VOL. AUDIT

WEATHER:

Day of Week	Summary of Weather Conditions
Sunday 20	45/57 SW WIND 5mph/GUST 8mph, NO PRECIPITATION
Monday 21	37/51 SW WIND 10mph/GUST 15mph, PRECIPITATION MORN. 1.8"
Tuesday 22	35/42 SW WIND 4mph/GUST 6mph, NO PRECIPITATION
Wednesday 23	34/42 SW WIND 3mph/GUST 6mph, NO PRECIPITATION
Thursday 24	32/40 NE WIND 3mph/GUST 5mph, NO PRECIPITATION
Friday 25	29/42 NNE WIND 2mph/GUST 3mph, NO PRECIPITATION
Saturday 26	28/45 SW WIND 3mph/GUST 4mph, NO PRECIPITATION

I certify that this report is true, accurate and complete, to the best of my knowledge and belief.

DATE: 01/04/2010

SIGNED:

Title/Qualification of Inspector: CONSTRUCTION OVERSIGHT / HEALTH + SAFETY

*Point
Ruston*

Weekly Site Inspection Report No. 2009-1227

Week of 12/27 - 1/1 2010

Inspector Tim RUSHER

Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION		NEED REPAIR?	COMMENTS/OBSERVATIONS
Gates:				
51 st North (electric)	(G)	F	P	Y (N)
South (electric)	(G)	F	P	Y (N)
Pond	(G)	F	P	Y (N)
Peninsula	(G)	F	P	Y (N)
54 th (Other) ELECT.	(G)	F	P	Y (N)
Signage:				
Gates	(G)	F	P	Y (N)
Perimeter	(G)	F	P	Y (N)
Safety	(G)	F	P	Y (N)
(Other)	(G)	F	P	Y (N)
Public Streets:				
Ruston Way	(G)	F	P	Y (N)
51 st & Gallagher	(G)	F	P	Y (N)
Stack Hill	(G)	F	P	Y (N)
(Other)	(G)	F	P	Y (N)
BMPs:				
Berms	(G)	F	P	Y (N)
Waddles	(G)	F	P	Y (N)
Silt Fence	(G)	F	P	Y (N)
(Other)	(G)	F	P	Y (N)
Strom drains clean:				
Lower Site	(G)	F	P	Y (N)
Stack Hill	(G)	F	P	Y (N)
Stockpiles:				(SEE NOTES)
Envirotac II	(G)	F	P	Y (N)
Plastic	(G)	F	P	Y (N)
Packed	(G)	F	P	Y (N)
Grass	(G)	F	P	Y (N)
Dust:				
Traffic areas	(G)	F	P	Y (N)
Excavation area	(G)	F	P	Y (N)
(Other)	(G)	F	P	Y (N)
Fencing:				
Site Perimeter	(G)	F	P	Y (N)
Zone Separation	(G)	F	P	Y (N)
(Other)	(G)	F	P	Y (N)

Weekly Site Inspection Report No. 2009-1227
Operable Unit 02 – Asarco Tacoma Smelter Site (Point Ruston)

INSPECTION AREA	OVERAL CONDITION			NEED REPAIR?	COMMENTS/OBSERVATIONS
Docks:					
Barriers	(G)	F	P	Y	(N)
Signs (Other)	(G)	F	P	Y	(N)
	G	F	P	Y	N
Cameras:					
<u>STOCK HILL</u>	(G)	F	P	Y	(N)
<u>LOWER SITE</u>	G	F	(P)	(Y)	N
	G	F	P	Y	N
Health & Safety Plans:					
Site Superintendent	G	F	P	(Y)	N
Construction Super.	G	F	P	(Y)	N
Other	G	F	P	Y	N

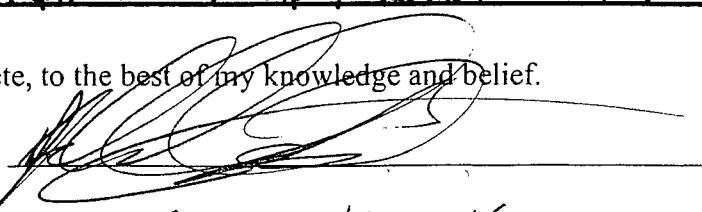
G=Good F=Fair P=Poor Y=Yes N=No

Misc. notes: C.H.B REPORTED SEEING RIVULETS ON 2-3 LARGE STOCK PILES.
 IT SHOULD BE NOTED THAT THE LARGE SITE SUPERINTENDANT REPORTS THAT THE RIVULETS ARE OLD AND STABILIZED. SEDIMENTS FROM THE RIVULETS HAVE BEEN CONTAINED AT THE BASE OF THE PILES.
 NO SIGNIFICANT WORK ACTIVITY ON SITE THIS WEEK DUE TO HOLIDAY SCHEDULING. INSPECTED MONDAY BY JENNIFER AND FRIDAY BY KETTIE.

WEATHER:

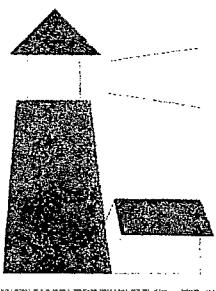
Day of Week	Summary of Weather Conditions
Sunday 27	29/ ^H 43 SW WIND 3 mph/GUST 5 mph, NO PRECIPITATION
Monday 28	33/ ^H 45 SW WIND 2 mph/GUST 3 mph, NO PRECIPITATION
Tuesday 29	33/ ^H 40 SW WIND 3 mph/GUST 5 mph, PRECIP. EVE 0.09"
Wednesday 30	38/ ^H 46 SSW WIND 7 mph/GUST 10 mph, NO PRECIPITATION
Thursday 31	38/ ^H 50 SW WIND 4 mph/GUST 6 mph, PRECIP. AFTERNOON 0.16"
Friday 1/1	47/ ^H 51 SSW WIND 10 mph/GUST 15 mph, PRECIP. EVE. 0.16"
Saturday 1/2	42/ ^H 49 SSW WIND 7 mph/GUST 10 mph, PRECIP. EVE. 0.04"

I certify that this report is true, accurate and complete, to the best of my knowledge and belief.

DATE: 1/4/2010 SIGNED: 

Title/Qualification of Inspector: CONSTRUCTION OVERSIGHT / HEALTH + SAFETY

DEC 24 2009



WILSON EFFECTIVE
COMPLIANCE

December 22, 2009

Tim Rusher
Point Ruston, LLC
5219 North Shirley St, Suite 100
Ruston, WA 98407

RE: INSPECTION 12.17.2009

Dear Tim,

An inspection was performed on the above date.

Work was being performed on the Ruston Way right of way installing a drainage pipe. Haul operations of excavated materials and clean fill were part of this operation. The following was observed during the site visit:

WAC 296-843-14005 Site Control - Decontamination. Although complex due to a moving activity, staff appeared to be following protocols for site control and decontamination.

WAC 296-155-650 Trenching and Shoring. Although a trench box was in use, the area between the box and the sidewall of the trench was sufficient to allow entry of an observer from the side and deep enough to be considered a trench. A number of solutions are available: providing a bridge plate to walk on, observe from filled end of trench, fill side of box to four feet or less, etc.

Follow up to previously observed activities:

WAC 296-24-750 Walking and Working Surfaces - Cement masonry wall less than ten feet does not have sufficient safeguards to prevent walking over edge. This hazard has been removed.

Sincerely,

A handwritten signature in black ink, appearing to read "Ken Wilson, CSP".

Ken Wilson, CSP
Wilson Effective Compliance

Table 1. Summary of December 2009 Outfall Data for As, Cu, and Zn Compared to SOW Limit

Location	As Conc. ppm	% of SOW Limit*	Cu Conc. ppm	% of SOW Limit*	Zn Conc. ppm	% of SOW Limit*
South Outfall	0.070	13.95%	0.055	11.00%	0.053	10.50%
OSW2	0.037	7.30%	0.003	0.50%	0.005	1.00%
North Outfall	0.015	2.90%	0.020	4.00%	0.025	5.00%

* 0.5 ppm is the limit of As, Cu, and Zn allowed as documented in the SOW.



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ANALYTICAL SUMMARY REPORT

January 04, 2010

Point Ruston LLC
5219 N Shirley St Ste 100
Tacoma, WA 98407

Workorder No.: B09121951

Project Name: Tacoma Smelter Outfall Samples

RECEIVED
JAN 08 2010
BY:

Energy Laboratories Inc received the following 12 samples for Point Ruston LLC on 12/29/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B09121951-001	TSM1209407, N	12/07/09 11:30	12/29/09	Aqueous	Metals by ICP/ICPMS, Total Metals Preparation by EPA 200.2
B09121951-002	TSM1209107, S	12/07/09 11:16	12/29/09	Aqueous	Same As Above
B09121951-003	TSM1209207, OSW	12/07/09 11:17	12/29/09	Aqueous	Same As Above
B09121951-004	TSM1209414, North	12/14/09 10:07	12/29/09	Aqueous	Same As Above
B09121951-005	TSM1209114, South	12/14/09 10:25	12/29/09	Aqueous	Same As Above
B09121951-006	TSM1209214, OSW	12/14/09 10:24	12/29/09	Aqueous	Same As Above
B09121951-007	TSM1209421, North	12/21/09 9:28	12/29/09	Aqueous	Same As Above
B09121951-008	TSM1209121, South	12/21/09 9:15	12/29/09	Aqueous	Same As Above
B09121951-009	TSM1209221, OSW	12/21/09 9:16	12/29/09	Aqueous	Same As Above
B09121951-010	TSM1209428, North	12/28/09 8:35	12/29/09	Aqueous	Same As Above
B09121951-011	TSM1209128, South	12/28/09 8:27	12/29/09	Aqueous	Same As Above
B09121951-012	TSM1209228, OSW	12/28/09 8:26	12/29/09	Aqueous	Same As Above

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these tests results, please call.

Report Approved By: _____ Supervisor, Wet Chemistry

Digitally signed by Keri Conter
Date: 2010.01.05 11:47:01 -
07:00



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-001
Client Sample ID TSM1209407, N

Report Date: 01/04/10
Collection Date: 12/07/09 11:30
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.013	mg/L		0.005	E200.8		01/01/10 01:29 / jjw
Copper	0.01	mg/L		0.01	E200.8		01/01/10 01:29 / jjw
Zinc	0.01	mg/L		0.01	E200.8		01/01/10 01:29 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-002
Client Sample ID TSM1209107, S

Report Date: 01/04/10
Collection Date: 12/07/09 11:16
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.073	mg/L		0.005	E200.8		01/01/10 01:36 / jw
Copper	0.03	mg/L		0.01	E200.8		01/01/10 01:36 / jw
Zinc	0.05	mg/L		0.01	E200.8		01/01/10 01:36 / jw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-003
Client Sample ID TSM1209207, OSW

Report Date: 01/04/10
Collection Date: 12/07/09 11:17
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.038	mg/L		0.005	E200.8		01/01/10 06:27 / jw
Copper	ND	mg/L		0.01	E200.8		01/01/10 06:27 / jw
Zinc	ND	mg/L		0.01	E200.8		01/01/10 06:27 / jw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-004
Client Sample ID: TSM1209414, North

Report Date: 01/04/10
Collection Date: 12/14/09 10:07
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.013	mg/L		0.005	E200.8		01/01/10 01:43 / jjw
Copper	0.02	mg/L		0.01	E200.8		01/01/10 01:43 / jjw
Zinc	0.04	mg/L		0.01	E200.8		01/01/10 01:43 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-005
Client Sample ID TSM1209114, South

Report Date: 01/04/10
Collection Date: 12/14/09 10:25
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.066	mg/L		0.005	E200.8		01/01/10 04:44 / jw
Copper	0.11	mg/L		0.01	E200.8		01/01/10 04:44 / jw
Zinc	0.07	mg/L		0.01	E200.8		01/01/10 04:44 / jw

Report Definitions:
Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-006
Client Sample ID TSM1209214, OSW

Report Date: 01/04/10
Collection Date: 12/14/09 10:24
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.029	mg/L		0.005	E200.8		01/01/10 06:34 / jjw
Copper	ND	mg/L		0.01	E200.8		01/01/10 06:34 / jjw
Zinc	ND	mg/L		0.01	E200.8		01/01/10 06:34 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-007
Client Sample ID TSM1209421, North

Report Date: 01/04/10
Collection Date: 12/21/09 09:28
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.018	mg/L		0.005	E200.8		01/01/10 04:51 / jjw
Copper	0.03	mg/L		0.01	E200.8		01/01/10 04:51 / jjw
Zinc	0.03	mg/L		0.01	E200.8		01/01/10 04:51 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-008
Client Sample ID TSM1209121, South

Report Date: 01/04/10
Collection Date: 12/21/09 09:15
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.092	mg/L		0.005	E200.8		01/01/10 04:58 / jjw
Copper	0.06	mg/L		0.01	E200.8		01/01/10 04:58 / jjw
Zinc	0.06	mg/L		0.01	E200.8		01/01/10 04:58 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-009
Client Sample ID TSM1209221, OSW

Report Date: 01/04/10
Collection Date: 12/21/09 09:16
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.036	mg/L		0.005	E200.8		01/01/10 06:41 / jjw
Copper	ND	mg/L		0.01	E200.8		01/01/10 06:41 / jjw
Zinc	ND	mg/L		0.01	E200.8		01/01/10 06:41 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-010
Client Sample ID TSM1209428, North

Report Date: 01/04/10
Collection Date: 12/28/09 08:35
Date Received: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.014	mg/L		0.005	E200.8		01/01/10 05:05 / jjw
Copper	0.02	mg/L		0.01	E200.8		01/01/10 05:05 / jjw
Zinc	0.02	mg/L		0.01	E200.8		01/01/10 05:05 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-011
Client Sample ID TSM1209128, South

Report Date: 01/04/10
Collection Date: 12/28/09 08:27
DateReceived: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.048	mg/L		0.005	E200.8		01/01/10 05:11 / jjw
Copper	0.02	mg/L		0.01	E200.8		01/01/10 05:11 / jjw
Zinc	0.03	mg/L		0.01	E200.8		01/01/10 05:11 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter Outfall Samples
Lab ID: B09121951-012
Client Sample ID TSM1209228, OSW

Report Date: 01/04/10
Collection Date: 12/28/09 08:26
DateReceived: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	0.043	mg/L		0.005	E200.8		01/01/10 05:18 / jjw
Copper	0.01	mg/L		0.01	E200.8		01/01/10 05:18 / jjw
Zinc	0.02	mg/L		0.01	E200.8		01/01/10 05:18 / jjw

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



QA/QC Summary Report

Client: Point Ruston LLC

Report Date: 01/04/10

Project: Tacoma Smelter Outfall Samples

Work Order: B09121951

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8	Batch: 43595								
Sample ID: MB-43595	Method Blank Run: ICPMS202-B_091231B 12/31/09 22:30								
Arsenic	ND	mg/L	0.0002						
Copper	0.0001	mg/L	0.0001						
Zinc	0.002	mg/L	0.0005						
Sample ID: LCS5-43595	Laboratory Control Sample Run: ICPMS202-B_091231B 12/31/09 22:37								
Arsenic	0.496	mg/L	0.0050	99	85	115			
Copper	0.479	mg/L	0.010	96	85	115			
Zinc	0.516	mg/L	0.010	103	85	115			
Sample ID: B09121906-002BMS5	Sample Matrix Spike Run: ICPMS202-B_091231B 12/31/09 23:04								
Arsenic	0.514	mg/L	0.0050	102	70	130			
Copper	0.477	mg/L	0.010	95	70	130			
Zinc	0.504	mg/L	0.010	100	70	130			
Sample ID: B09121906-002BMSD5	Sample Matrix Spike Duplicate Run: ICPMS202-B_091231B 12/31/09 23:10								
Arsenic	0.515	mg/L	0.0050	103	70	130	0.2	20	
Copper	0.455	mg/L	0.010	90	70	130	4.8	20	
Zinc	0.504	mg/L	0.010	100	70	130	0.2	20	
Method: E200.8	Batch: 43596								
Sample ID: MB-43596	Method Blank Run: ICPMS202-B_091231B 01/01/10 04:23								
Arsenic	ND	mg/L	0.0002						
Copper	0.0004	mg/L	0.0001						
Zinc	0.002	mg/L	0.0005						
Sample ID: LCS5-43596	Laboratory Control Sample Run: ICPMS202-B_091231B 01/01/10 04:30								
Arsenic	0.521	mg/L	0.0050	104	85	115			
Copper	0.519	mg/L	0.010	104	85	115			
Zinc	0.536	mg/L	0.010	107	85	115			
Sample ID: B09121965-001AMS5	Sample Matrix Spike Run: ICPMS202-B_091231B 01/01/10 06:07								
Arsenic	0.516	mg/L	0.0050	103	70	130			
Copper	0.516	mg/L	0.010	102	70	130			
Zinc	0.542	mg/L	0.010	108	70	130			
Sample ID: B09121965-001AMSD5	Sample Matrix Spike Duplicate Run: ICPMS202-B_091231B 01/01/10 06:14								
Arsenic	0.520	mg/L	0.0050	104	70	130	0.7	20	
Copper	0.519	mg/L	0.010	102	70	130	0.6	20	
Zinc	0.541	mg/L	0.010	108	70	130	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Client: Point Ruston LLC

Report Date: 01/04/10

Project: Tacoma Smelter Outfall Samples

Work Order: B09121951

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS202-B_091231B	
Sample ID: QCS - 090602A,090609B, Initial Calibration Verification Standard								12/31/09 16:41	
Arsenic	0.0491	mg/L	0.0050	98	90	110			
Copper	0.0505	mg/L	0.010	101	90	110			
Zinc	0.0503	mg/L	0.010	101	90	110			
Method: E200.8								Batch: R141242	
Sample ID: LRB Method Blank								Run: ICPMS202-B_091231B	
Arsenic	0.0001	mg/L	3E-05					12/31/09 17:51	
Copper	ND	mg/L	8E-05						
Zinc	0.001	mg/L	0.0001						
Sample ID: LFB Laboratory Fortified Blank								Run: ICPMS202-B_091231B	
Arsenic	0.0524	mg/L	0.0050	104	85	115		12/31/09 17:58	
Copper	0.0541	mg/L	0.010	108	85	115			
Zinc	0.0553	mg/L	0.010	109	85	115			
Sample ID: B09121971-001AMS Sample Matrix Spike								Run: ICPMS202-B_091231B	
Arsenic	0.0561	mg/L	0.0010	104	70	130		12/31/09 21:27	
Copper	0.0611	mg/L	0.010	102	70	130			
Zinc	0.0644	mg/L	0.010	103	70	130			
Sample ID: B09121971-001AMSD Sample Matrix Spike Duplicate								Run: ICPMS202-B_091231B	
Arsenic	0.0568	mg/L	0.0010	105	70	130	1.1	12/31/09 21:34	
Copper	0.0619	mg/L	0.010	103	70	130	1.3	20	
Zinc	0.0661	mg/L	0.010	107	70	130	2.5	20	
Sample ID: B09122025-001AMS Sample Matrix Spike								Run: ICPMS202-B_091231B	
Arsenic	0.0551	mg/L	0.0010	102	70	130		01/01/10 07:02	
Copper	0.0701	mg/L	0.010	101	70	130			
Zinc	0.175	mg/L	0.010	94	70	130			
Sample ID: B09122025-001AMSD Sample Matrix Spike Duplicate								Run: ICPMS202-B_091231B	
Arsenic	0.0559	mg/L	0.0010	104	70	130	1.4	01/01/10 07:37	
Copper	0.0697	mg/L	0.010	100	70	130	0.5	20	
Zinc	0.175	mg/L	0.010	95	70	130	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Workorder Receipt Checklist



Point Ruston LLC

B09121951

Login completed by: Darwin C. Miller

Date and Time Received: 12/29/2009 9:15 AM

Reviewed by: BL2000\kmcDonald

Received by: lsc

Reviewed Date: 12/30/2009 10:42:25 AM

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature:	8°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Contact and Corrective Action Comments:

None

OUT falls

CHAIN OF CUSTODY RECORD

**POINT
RUSTON**

5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

PROJ. NO		PROJECT NAME		NO. OF CONTAINERS	REMARKS	
TACOMA SMELTER		OUT FALLS Samples				
SAMPLERS: (Signature)	<i>J.D. Jr.</i>					
DATE	STAF	TIME	COMP	GRAB	SAMPLE NUMBER	
12/7/09	N	11:30	✓		TSM1209407	1 ✓ 109121951-001
12/7/09	S	11:16	✓		TSM1209107	1 ✓ -002 PLEASE EMAIL RESULTS TO:
12/7/09	OSW	11:17	✓		TSM1209207	1 ✓ -003 Tim@PointRuston.com
12/14/09	NORTH	10:07	✓		TSM1209414	1 ✓ -004
12/14/09	SOUTH	10:25	✓		TSM1209114	1 ✓ -005
12/14/09	OSW	10:24	✓		TSM1209214	1 ✓ -006
12/21/09	NORTH	9:28	✓		TSM1209421	1 ✓ -007
12/21/09	SOUTH	9:15	✓		TSM1209121	1 ✓ -008
12/21/09	OSW	9:16	✓		TSM1209221	1 ✓ -009
12/28/09	NORTH	8:35	✓		TSM1209428	1 ✓ -010
12/28/09	SOUTH	8:27	✓		TSM1209128	1 ✓ -011
12/28/09	OSW	8:26	✓		TSM1209228	1 ✓ -012
Relinquished (Signature)		Date/Time	Received by: (Signature)		Lab	Shipped via: <u>FedEx</u> , UPS or Other Air Bill # _____
<i>J.D. Jr.</i>		12/28/09 FEDEX				
Relinquished (Signature)		Date/Time	Received by: (Signature)		Remarks	
Relinquished (Signature)		Date/Time	Received for Laboratory by: (Signature)		Date/Time	Enclosed:
			<i>Lori Cadman</i>		12/29/09 09:15	<input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter
					Split Samples: [] Accepted [] Declined	
					Signature	



ENERGY LABORATORIES, INC. * 1120 S 27th St * PO Box 30916 * Billings, MT 59107-0916
Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

ANALYTICAL SUMMARY REPORT

December 31, 2009

Point Ruston LLC
5219 N Shirley St Ste 100
Tacoma, WA 98407

Workorder No.: B09121947

Project Name: Tacoma Smelter OCF - Leachate Tank

Energy Laboratories Inc received the following 1 sample for Point Ruston LLC on 12/29/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B09121947-001	TSM120928, Leachate	12/28/09 8:02	12/29/09	Aqueous	Metals by ICP, Total Metals Preparation by EPA 200.2

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

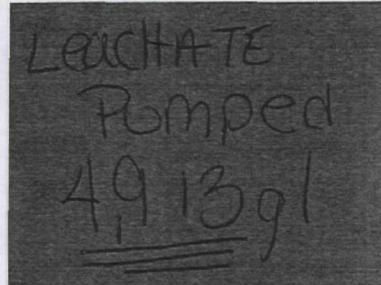
The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these tests results, please call.

Report Approved By: Supervisor, Wet Chemistry

Digitally signed by Keri Conter
Date: 2009.12.31 08:54:22 -

07:00





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Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Point Ruston LLC
Project: Tacoma Smelter OCF - Leachate Tank
Lab ID: B09121947-001
Client Sample ID TSM120928, Leachate

Report Date: 12/31/09
Collection Date: 12/28/09 08:02
DateReceived: 12/29/09
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
METALS, TOTAL							
Arsenic	5.7	mg/L		0.1		E200.7	12/30/09 20:42 / tao

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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QA/QC Summary Report

Client: Point Ruston LLC

Report Date: 12/31/09

Project: Tacoma Smelter OCF - Leachate Tank

Work Order: B09121947

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7	Batch: 43595								
Sample ID: MB-43595	Method Blank								
Arsenic	ND	mg/L	0.04						
Sample ID: LCS5-43595	Run: ICP202-B_091230A								
Arsenic	0.484	mg/L	0.038	97	85	115			
Sample ID: B09121906-002BMS5	Run: ICP202-B_091230A								
Arsenic	0.479	mg/L	0.076	96	70	130			
Sample ID: B09121906-002BMSD5	Run: ICP202-B_091230A								
Arsenic	0.513	mg/L	0.076	103	70	130	6.8	20	
Method: E200.7	Analytical Run: ICP202-B_091230A								
Sample ID: ICV	Continuing Calibration Verification Standard								
Arsenic	2.45	mg/L	0.10	98	95	105			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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Toll Free 800.735.4489 * 406.252.6325 * FAX 406.252.6069 * eli@energylab.com

Workorder Receipt Checklist



Point Ruston LLC

B09121947

Login completed by: Darwin C. Miller

Date and Time Received: 12/29/2009 9:15 AM

Reviewed by: BL2000\kmcDonald

Received by: lsc

Reviewed Date: 12/29/2009 1:25:51 PM

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature:	8°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Contact and Corrective Action Comments:

None

LEACHATE

CHAIN OF CUSTODY RECORD

**POINT
RUSTON**
5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

PROJ. NO TACOMA SMELTER	PROJECT NAME OCF- LEACHATE TANK					
SAMPLERS: (Signature) <i>J. D. Dunham Jr.</i>					REMARKS	
DATE	STA #	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS
12/28/08	LEACHATE	802		✓	TSM 120928	1 ✓ 309121947-001
12/28/08		802				* RUSH ANALYSIS *
<p>PLEASE E-MAIL RESULTS TO: Tim2@PINTRUSTON.com</p> <p><i>THANK YOU</i></p>						
Relinquished (Signature) <i>J. D. Dunham Jr.</i>		Date/Time 12/28/09 FedEx	Received by: (Signature)		Lab	Shipped via FedEx , UPS or Other Air Bill #
Relinquished (Signature)		Date/Time	Received by: (Signature)		Remarks	
Relinquished (Signature)		Date/Time	Received for Laboratory by: (Signature) <i>Lori Cadman</i>		Date/Time 12/29/09 09:15	Enclosed: <input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter
					Split Samples: [] Accepted [] Declined	

SPECTRA Laboratories

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DEC 23 2009

12/21/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring
Date Received: 11/30/2009
Spectra Project: 2009110547

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193048	1	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/23/2009
8193048	1	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/23/2009
8193047	2	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/23/2009
8193047	2	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/23/2009
8193046	3	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/23/2009
8193046	3	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/23/2009
8193045	4	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/24/2009
8193045	4	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/24/2009
8193044	5	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/24/2009
8193044	5	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/24/2009
8193043	6	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/24/2009
8193043	6	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/24/2009
8193042	7	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/25/2009
8193042	7	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/25/2009
8193041	8	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/25/2009
8193041	8	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/25/2009

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
a8/scj



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12/21/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring
Date Received: 11/30/2009
Spectra Project: 2009110547

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193040	9	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/25/2009
8193040	9	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/25/2009

SPECTRA LABORATORIES



Steve Hibbs, Laboratory Manager
a8/scj

PAGE 1 of 1

CHAIN OF CUSTODY RECORD

20091105A7

**POINT
RUSTON**
5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

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DEC 24 2009

12/23/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/08/2009
Spectra Project: 2009120141

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193038	1	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009
8193038	1	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009
8193037	2	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009
8193037	2	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009
8193036	3	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009
8193036	3	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009
8193035	4	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/01/2009
8193035	4	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/01/2009
8193034	5	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/01/2009
8193034	5	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/01/2009
8193033	6	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/01/2009
8193033	6	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/01/2009
8193032	7	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/02/2009
8193032	7	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/02/2009
8193031	8	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/02/2009
8193031	8	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/02/2009

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
a8/scj

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12/23/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/08/2009
Spectra Project: 2009120141

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193030	9	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/02/2009
8193030	9	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/02/2009
8193029	10	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/03/2009
8193029	10	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/03/2009
8193028	11	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/03/2009
8193028	11	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/03/2009
8193027	12	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/03/2009
8193027	12	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/03/2009
8193026	13	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/04/2009
8193026	13	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/04/2009
8193025	14	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/04/2009
8193025	14	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/04/2009
8193024	15	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/04/2009
8193024	15	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/04/2009
8193039	16	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009
8193039	16	Lead	< 0.05	µg/m3	SW846 6010B	Filter	11/30/2009

SPECTRA LABORATORIES

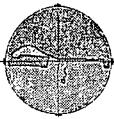
Steve Hibbs, Laboratory Manager
a8/scj

PAGE 1 of 2

CHAIN OF CUSTODY RECORD

**POINT
RUSTON**
5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

200912041

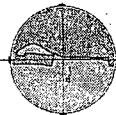


PROJ. NO	PROJECT NAME					NO. OF CONTAINERS	REMARKS
AIR MONITORING	POINT RUSTON, LLC Hi-VOL						
SAMPLERS: (Signature)							
DATE	STA#	TIME	COMP	GRAB	SAMPLE NUMBER		
12/30/09	SG		✓		8193038	1	✓
12/30/09	OCF-VI		✓		8193037	1	✓
12/30/09	OCF-NW		✓		8193036	1	✓
12/1/09	SG		✓		8193035	1	✓
12/1/09	OCF-NI		✓		8193034	1	✓
12/1/09	OCF-NW		✓		8193033	1	✓
12/2/09	SG		✓		8193032	1	✓
12/2/09	OCF-VI		✓		8193031	1	✓
12/2/09	OCF-NW		✓		8193030	1	✓
12/3/09	SG		✓		8193029	1	✓
12/3/09	OCF-VI		✓		8193028	1	✓
12/3/09	OCF-NW		✓		8193027	1	✓
12/4/09	SG		✓		8193026	1	✓
12/4/09	OCF-VI		✓		8193025	1	✓
12/4/09	OCF-NW		✓		8193024	1	✓
Relinquished (Signature)			Date/Time	Received by: (Signature) 12/10/09 Konica Beck 10:45		Lab Spectra	Shipped via: FedEx, UPS or Other _____ Air Bill # _____
Relinquished (Signature)			Date/Time	Received by: (Signature)		Remarks	
Relinquished (Signature)			Date/Time	Received for Laboratory by: (Signature)		Date/Time	Enclosed: <input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter
							Split Samples: []Accepted []Declined _____

CHAIN OF CUSTODY RECORD

PAGE 2 of 2

POINT RUSTON



5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

PROJ. NO		PROJECT NAME					REMARKS
AIR MONITORING		POINT RUSTON, LLC Hi-VOL					
SAMPLERS: (Signature)		<i>R. Runk Jr.</i>					
DATE	STA #	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	
11/30/01	CONTROL				8193039	1 ✓	
Relinquished (Signature) <i>R. Runk</i>		Date/Time	Received by: (Signature) <i>Karen G. Beck</i>		Lab <i>Spectra</i>	Shipped via: FedEx, UPS or Other Air Bill #	
Relinquished (Signature)		Date/Time	Received by: (Signature)		Remarks		
Relinquished (Signature)		Date/Time	Received for Laboratory by: (Signature)		Date/Time	Enclosed:	
						<input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter	
						Split Samples: []Accepted []Declined	

SPECTRA Laboratories

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DEC 24 2009

12/23/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/15/2009
Spectra Project: 2009120225

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193022	1	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/07/2009
8193022	1	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/07/2009
8193023	2	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009
8193023	2	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009
8193019	3	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009
8193019	3	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009
8193021	4	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009
8193021	4	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009
8193020	5	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/09/2009
8193020	5	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/09/2009
8193017	6	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/09/2009
8193017	6	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/09/2009
8193018	7	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/09/2009
8193018	7	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/09/2009
8193015	8	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/10/2009
8193015	8	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/10/2009

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
a8/scj

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12/23/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/15/2009
Spectra Project: 2009120225

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193014	9	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/10/2009
8193014	9	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/10/2009
8193013	10	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/10/2009
8193013	10	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/10/2009
8193012	11	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/11/2009
8193012	11	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/11/2009
8193011	12	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/11/2009
8193011	12	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/11/2009
8193010	13	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/11/2009
8193010	13	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/11/2009
8193016	14	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009
8193016	14	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/08/2009

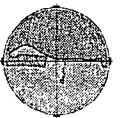
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PAGE 1 of 1

CHAIN OF CUSTODY RECORD

POINT
RUSTON



5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

2009120225

PROJ. NO	PROJECT NAME					NO. OF CONTAINERS	REMARKS	
Air MONITORING	POINT RUSTON, LLC Hi-VOL							JR
SAMPLERS: (Signature)								
DATE	STA #	TIME	COMP	GRAB	SAMPLE NUMBER			
12/7/09	DCF-VI		✓		8193022	1 ✓		
12/8/09	SG		✓		8193023	1 ✓		
12/8/09	DCF-VI		✓		8193019	1 ✓		
12/8/09	DCF-NW		✓		8193021	1 ✓		
12/9/09	SG		✓		8193020	1 ✓		
12/9/09	CCF-NI		✓		8193017	1 ✓		
12/9/09	DCF-NW		✓		8193018	1 ✓		
12/10/09	SG		✓		8193015	1 ✓		
12/10/09	DCF-VI		✓		8193014	1 ✓		
12/10/09	DCF-NW		✓		8193013	1 ✓		
12/11/09	SG		✓		8193012	1 ✓		
12/11/09	DCF-VI		✓		8193011	1 ✓		
12/11/09	DCF-NW		✓		8193010	1 ✓		
12/8/09	(CONTROL)		✓		8193010	1 ✓		
Relinquished (Signature)					Date/Time	Received by: (Signature)	Lab 12/15/09 Spectra	Shipped via: FedEx, UPS or Other _____ Air Bill # _____
Relinquished (Signature)					Date/Time	Received by: (Signature)	Remarks	
Relinquished (Signature)					Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: <input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter
								Split Samples: <input type="checkbox"/> Accepted <input type="checkbox"/> Declined _____



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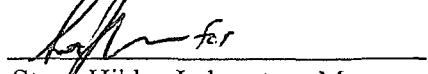
12/31/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/21/2009
Spectra Project: 2009120369

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193009	1	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/14/2009
8193009	1	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/14/2009
8193008	2	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/14/2009
8193008	2	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/14/2009
8193007	3	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/14/2009
8193007	3	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/14/2009
8193006	4	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/15/2009
8193006	4	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/15/2009
8193005	5	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/15/2009
8193005	5	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/15/2009
8193004	6	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/15/2009
8193004	6	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/15/2009
8193003	7	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009
8193003	7	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009
8193002	8	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009
8193002	8	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009

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12/31/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/21/2009
Spectra Project: 2009120369

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8193001	9	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009
8193001	9	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009
8231199	10	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/17/2009
8231199	10	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/17/2009
8231198	11	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/17/2009
8231198	11	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/17/2009
8231197	12	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/17/2009
8231197	12	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/17/2009
8231196	13	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/18/2009
8231196	13	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/18/2009
8231195	14	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/18/2009
8231195	14	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/18/2009
8231194	15	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/18/2009
8231194	15	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/18/2009
8231200	16	Arsenic	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009
8231200	16	Lead	< 0.05	µg/m³	SW846 6010B	Filter	12/16/2009

SPECTRALABORATORIES



Steve Hibbs, Laboratory Manager
a8/scj

CHAIN OF CUSTODY RECORD

PAGE 1 of 2

20091203109

POINT RUSTON

5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

PROJ. NO D.O MONITORING	PROJECT NAME POINT RUSTON, LLC Hi-VOL	NO. OF CONTAINERS <i>DS, TR</i>	REMARKS																		
SAMPLERS: (Signature)	JR																				
DATE	STA #	TIME	COMP	GRAB	SAMPLE NUMBER																
12/14/09	SG			✓		81930009	1														
12/14/09	CCF-VI			✓		81930008	1	✓													
12/14/09	CCF-NW			✓		81930007	1	✓													
12/15/09	SG			✓		81930010	1	✓													
12/15/09	CCF-VI			✓		81930005	1														
12/15/09	CCF-NW			✓		81930004	1	✓													
12/16/09	SG			✓		81930003	1	✓													
12/16/09	CCF-VI			✓		81930002	1	✓													
12/16/09	CCF-NW			✓		81930001	1	✓													
12/17/09	SG			✓		8231199	1														
12/17/09	CCF-VI			✓		8231198	1	✓													
12/17/09	CCF-NW			✓		8231197	1	✓													
12/18/09	SG			✓		8231196	1	✓													
12/18/09	CCF-VI			✓		8231195	1	✓													
12/18/09	CCF-NW			✓		8231194	1	✓													
Relinquished (Signature)		Date/Time		Received by: (Signature)		Lab		Shipped via: FedEx, UPS or Other													
<i>[Signature]</i>				<i>R. Hefner</i>		12/21/09		SPP CTRA 1217		Air Bill #											
Relinquished (Signature)		Date/Time		Received by: (Signature)		Remarks															
<i>[Signature]</i>																					
Relinquished (Signature)		Date/Time		Received for Laboratory by: (Signature)		Date/Time		Enclosed:													
<i>[Signature]</i>								<input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter													
Split Samples: []Accepted []Declined _____										Signature											

CHAIN OF CUSTODY RECORD

PAGE 2 of 2



POINT RUSTON

5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

PROJ. NO	PROJECT NAME AIR MONITORING POINT RUSTON, LLC				20091203109	6215 N. Cherry St., Suite 100 Phone: 253-752-2185 Fax: 253-752-7083 Tacoma, WA 98407	
SAMPLERS: (Signature)							
DATE	STA #	TIME	COMP	GRAB	SAMPLE NUMBER	NO OF CONTAINERS	REMARKS
12/11/08	CONTROL			✓	823120A	1 ✓	
Relinquished (Signature)				Date/Time	Received by: (Signature)	Lab	Shipped via: FedEx, UPS 12/11/08 or Other 12/17 Air Bill # _____
					K. P. Beck	Spertus	
Relinquished (Signature)				Date/Time	Received by: (Signature)	Remarks	
Relinquished (Signature)				Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed:
							<input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter
Split Samples: []Accepted []Declined							
Signature							



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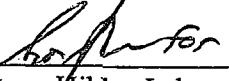
12/31/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/28/2009
Spectra Project: 2009120440

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8231193	1	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/21/2009
8231193	1	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/21/2009
8231192	2	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/21/2009
8231192	2	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/21/2009
8231191	3	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/21/2009
8231191	3	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/21/2009
8231190	4	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/22/2009
8231190	4	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/22/2009
8231189	5	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/22/2009
8231189	5	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/22/2009
8231188	6	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/22/2009
8231188	6	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/22/2009
8231187	7	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/23/2009
8231187	7	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/23/2009
8231186	8	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/23/2009
8231186	8	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/23/2009

SPECTRA LABORATORIES


Steve Hibbs, Laboratory Manager
a8/scj



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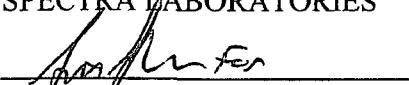
12/31/2009

Point Ruston
5219 N. Shirley St.,
Suite 100
Tacoma, WA 98407

Project: Air Monitoring (Hi-Vol)
Date Received: 12/28/2009
Spectra Project: 2009120440

<u>Client ID</u>	<u>Spectra #</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Matrix</u>	<u>Date Sampled</u>
8231185	9	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/23/2009
8231185	9	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/23/2009
8231184	10	Arsenic	0.11	µg/m3	SW846 6010B	Filter	12/24/2009
8231184	10	Lead	0.07	µg/m3	SW846 6010B	Filter	12/24/2009
8231183	11	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/24/2009
8231183	11	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/24/2009
8231182	12	Arsenic	< 0.05	µg/m3	SW846 6010B	Filter	12/24/2009
8231182	12	Lead	< 0.05	µg/m3	SW846 6010B	Filter	12/24/2009

SPECTRA LABORATORIES



Steve Hobbs, Laboratory Manager
a8/scj

PAGE 1 of 1

CHAIN OF CUSTODY RECORD

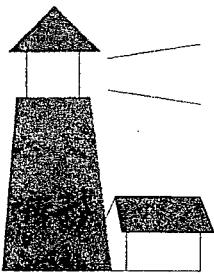
POINT
RUSTON



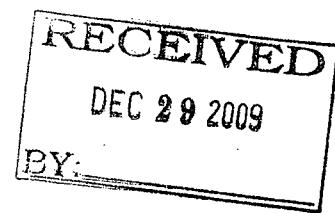
5219 N. Shirley St., Suite 100 Tacoma, WA 98407
Phone: 253-752-2185 Fax: 253-752-7083

2009120440

PROJ. NO		PROJECT NAME		Hi-VOL		NO. OF CONTAINERS	REMARKS
AIR MONITORING		POINT RUSTON, LLC					
SAMPLERS: (Signature)	<i>Dunk R</i>						
DATE	STA #	TIME	COMP	GRAB	SAMPLE NUMBER		
12/21/09	SG		✓		8231193	1	✓
12/21/09	DCF-VI		✓		8231192	1	✓
12/21/09	DCF-NW		✓		8231191	1	✓
12/22/09	SG		✓		8231190	1	L
12/22/09	DCF-VI		✓		8231189	1	✓
12/22/09	DCF-NW		✓		8231188	1	✓
12/23/09	SG		✓		8231187	1	✓
12/23/09	DCF-VI		✓		8231186	1	✓
12/23/09	DCF-NW		✓		8231185	1	✓
12/24/09	SG		✓		8231184	1	✓
12/24/09	DCF-VI		✓		8231183	1	✓
12/24/09	DCF-NW		✓		8231182	1	✓
Relinquished (Signature)		Date/Time		Received by: (Signature) 12/28/09 <i>Karen Lightfoot</i>		Lab <i>Spectra</i>	Shipped via: FedEx, UPS or Other _____ Air Bill # _____
Relinquished (Signature)		Date/Time		Received by: (Signature)		Remarks	
Relinquished (Signature)		Date/Time		Received for Laboratory by: (Signature)		Date/Time	Enclosed: <input type="checkbox"/> Parameter List with DTLs <input type="checkbox"/> Cover Letter
						Split Samples: <input type="checkbox"/> Accepted <input type="checkbox"/> Declined _____ <i>Signature</i>	



WILSON EFFECTIVE
COMPLIANCE



December 27, 2009

Tim Rusher
MC Construction
5219 N Shirley St, Suite 100
Ruston, WA 98407

RE: AUDIT TRANSMITTAL

Dear Tim,

I have attached the audit where the leg work was completed on December 22. There were no surprises. Hope the holidays are going well for you. If there are any questions, please give me a call at 253-377-8580.

Thank you.

Sincerely,

Ken Wilson, CSP

RECEIVED
DEC 29 2009
BY:

QUARTERLY PERFORMANCE AUDIT
OF THE
AIR QUALITY MONITORING SYSTEM
AT THE
POINT RUSTON SITE

December 22, 2009

TABLE OF CONTENTS

Introduction.....	3
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Audit Results.....	4
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Appendix C – Orifice Transfer Standard Certificate	14

Introduction

The ASARCO Superfund Site (the Site) employs an air quality monitoring system as a function of the requirements of the cleanup program. This system is managed by Point Ruston, LLC. The cleanup program is being conducted in Ruston, Washington. The system is designed to measure releases of arsenic and lead particulate from operations at the Site.

The air quality monitoring system consists of three stations. These are the South Gate Station located at the southwest edge of the Site, the OCF Vault #1 Station located at the southern edge of the OCF near 52nd Street and Bennett Street and the OCF NW Station located at the Northwest edge of the site at N 54th and Bennett Streets. All stations each hold a total suspended particulate (TSP) monitor.

The quality control program designed for the air quality monitoring system requires quarterly audits of the system as it is in operation. This is one of those audits.

Method

A single point audit was conducted of each piece of equipment using a variable orifice. The audit consists of using a calibrated orifice to compare measured volumes versus reported volumes. An error of 7% or less is within the tolerances of the system.

The following procedures were utilized during the audit:

TSP Performance Audit

Determine equipment operating conditions, including temperature, pressure, and Dixon Chart reading.

Remove filter cassette and place in a protective cover.

Install clean filter, calibrating orifice, and manometer

Start equipment, checking for leaks and allow flow to stabilize for several minutes.

Note Dixon Chart reading and orifice pressure.

Return system to operation, noting any changes in operation.

Verify flow determined by calibrating orifice is within 7% of reported flow from previous calibration.

Verify flow is within operating parameters of 1.1 to 1.7 m³/min.

Audit Results

The audit was conducted in total on December 22, 2009. The system was in operation at the time of the audit. Flow rates were within acceptable range of their respective calibrations and within operating tolerances. The summary of the audit is in the Audit Data Report to follow.

The flow rates were determined through the use of EPA reference methods as found in 40 CFR 50, Appendix M.

All data and certificate of calibration for the calibrating orifice are attached in Appendices A and C, respectively. Calibration data as provided by the system operator is provided in Appendix B.

Appendix A

DATA SHEETS

FIGURE G - 4
HIGH VOLUME SAMPLER AUDIT

SITE Point Ruston DATE 12/22/09

STATION OLF NORTHWEST OPERATOR KL

AUDIT ORIFICE No. 676 CERT. DATE 9.21.09

BAROMETRIC PRESSURE 765.3 TEMPERATURE 278 K
30.13

POINT	MANOMETER			Transducer Reported		Calib	Audit	%
	Left	Right	Total	Flow	Flow	Flow	Flow	DIFF
1	3.05	2.87	5.92	50.9	55.7	53.5	51.7	5.6
2	2.70	2.75	5.45	49.3	53.4	51.3	54.4	5.7
3	2.46	2.57	5.03	46.8	49.8	47.8	52.3	8.6
4	2.12	2.20	4.32	43.6	45.2	43.4	48.4	10
5	1.77	1.82	3.59	40.1	40.2	38.6	44.2	13

T° C = $5/9(F - 32)$ T° K = °C + 273 Calibrated Flow = Reported Flow * CF

Audit Flow = Orifice Flow * CF

Correction Factor (CF) = $((29.92/BP) * (T/K/298))^{0.5} = .96$

Pressure Transducer reading for a normal run = 52.8

% = (Calibrated Flow - Audit Flow) / Audit Flow * 100 = 5.6%

Audit Limits: Calibrated flow must be within +/- 7% of Audit Flow at point closest to usual run flow

Comments

Point Ruston

FIGURE G - 4
HIGH VOLUME SAMPLER AUDIT

SITE Point Ruston

DATE 12/22/09

STATION OCF VAULT

OPERATOR KW

AUDIT ORIFICE No. 676

CERT. DATE 9.21.09

BAROMETRIC PRESSURE 765.3
30.13

TEMPERATURE 278 K

POINT	MANOMETER			Transducer Reported		Calib	Audit	%
	Left	Right	Total	Flow	Flow	Flow	Flow	DIFF

1	2.92	2.95	5.87	56.0	57.6	55.3	56.4	2.0
2	3.37	3.38	6.75	53.2	42.3	59.8	60.5	1.2
3	2.63	2.60	5.23	47.1	53.3	51.2	53.3	3.9
4	2.21	2.20	4.44	43.2	47.5	45.6	49.1	7.1
5	1.79	1.75	3.54	39.2	41.6	39.9	43.9	9.1

T° C = 5/9(F° - 32)

T° K = °C + 273

Calibrated Flow = Reported Flow * CF

Audit Flow = Orifice Flow * CF

Correction Factor (CF) = $((29.92/BP) * (T/K/298))^{0.5} = \underline{\quad .96 \quad}$

Pressure Transducer reading for a normal run = 53.2

% = (Calibrated Flow - Audit Flow) / Audit Flow * 100 = 1.2%

Audit Limits: Calibrated flow must be within +/- 7% of Audit Flow at point closest to usual run flow

Comments

FIGURE G - 4
HIGH VOLUME SAMPLER AUDIT

SITE Point RustonDATE 12/22/09STATION South GateOPERATOR KWAUDIT ORIFICE No. 626CERT. DATE 9.21.09BAROMETRIC PRESSURE 765.3
30.13TEMPERATURE 278 K

POINT	MANOMETER		Transducer Reported	Calib	Audit	%		
	Left	Right					Total	Flow
1	3.82	3.97	7.79	60.4 63.8	66.3	63.6	64.9 67.7	2.0
2	3.80	3.70	7.20	57.4 60.9	62.3	59.8	62.4	4.2
3	2.90	3.08	5.98	52.2	55.3	53.1	56.9	6.7
4	2.36	2.50	4.86	46.8	48.0	46.1	51.4	10.3
5	1.88	1.99	3.87	43.6	43.7	42.6	45.9	8.5

T° C = $5/9(F - 32)$

T° K = °C + 273

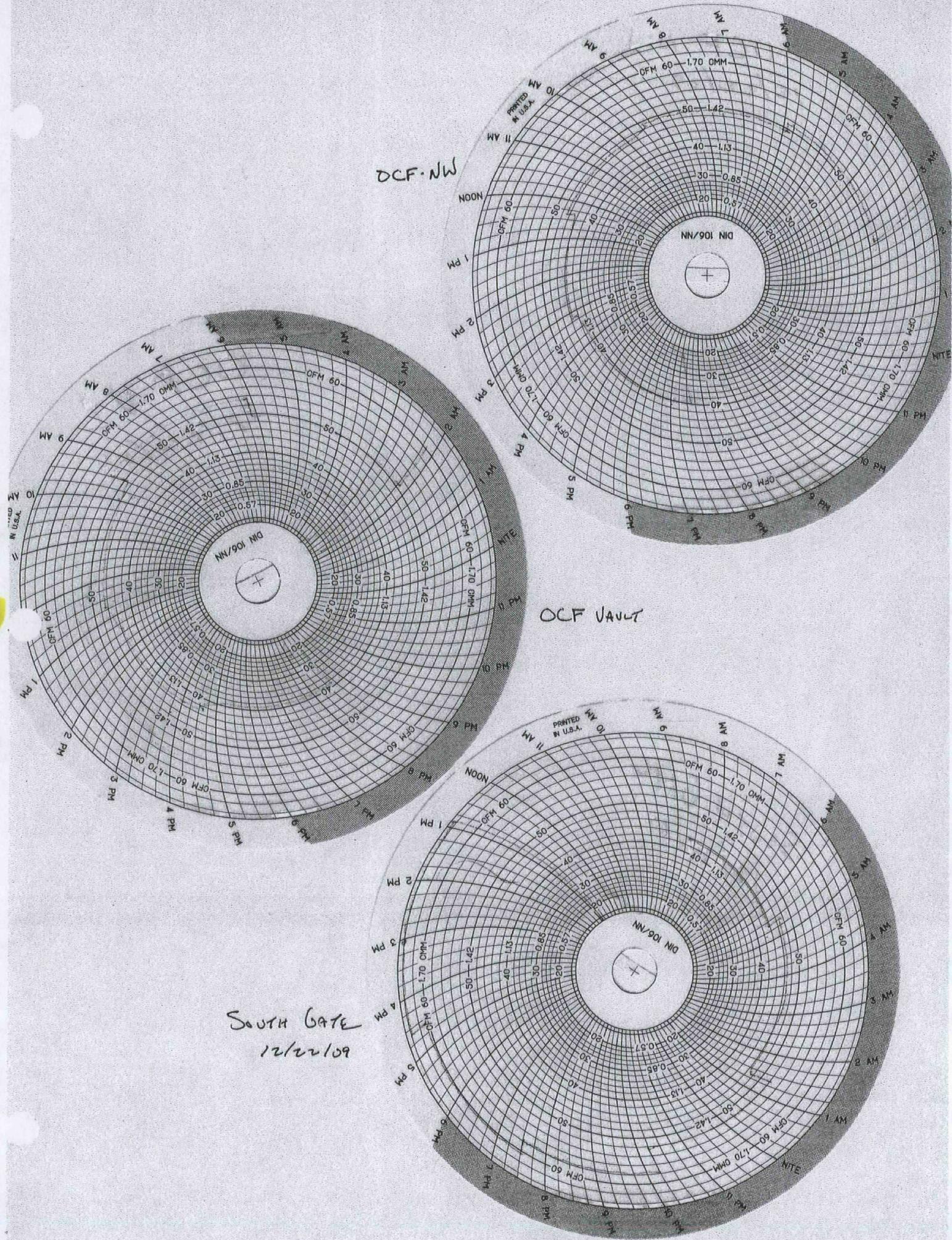
Calibrated Flow = Reported Flow * CF

Audit Flow = Orifice Flow * CF

Correction Factor (CF) = $((29.92/BP) * (T/K/298))^{0.5}$ = .96Pressure Transducer reading for a normal run = 53.6% = (Calibrated Flow - Audit Flow) / Audit Flow * 100 = 6.7%

Audit Limits: Calibrated flow must be within +/- 7% of Audit Flow at point closest to usual run flow

Comments



Appendix B

CALIBRATION SHEETS



5219 N. Shirley Street, Suite 100
 Ruston, WA 98407
 Phone: 253-752-2185
 Fax: 253-752-7083

HIGH VOLUME (TSP) SAMPLER CALIBRATION

STATION NAME	<u>OCF-NW</u>		DATE	<u>12/7/2009</u>		
ORIFICE ID	<u>207D</u>		CALIBRATED BY:	<u>Jen Rusher</u>		
MOTOR NO.	<u>1072809</u>		NEW / REPAIRS ? <u>New Brushes</u>			
TEMPERATURE	<u>0</u>	<u>C</u>	<u>273 K (Ta)</u>	INSPECTION:		
PRESSURE	<u>29.71</u>	in Hg	<u>755 mm Hg (Pa)</u>	TRANSFORMER	<u>X</u>	
			SHELTER	<u>X</u>	POWER CORD	<u>X</u>
			PLATFORM	<u>X</u>	TIMER	<u>X</u>

MANOMETER (2.8" - 6")		TOTAL	DICKSON CFM	TOTAL * C	SQUARE ROOT	(SQUARE ROOT -0.02006) * D (Qstd b)	Last column *
LEFT	RIGHT						35.3
3.40	3.40	6.80	56.00	7.248417745	2.69228857	1.794911653	63.36038134
2.90	3.00	5.90	53.25	6.289068338	2.507801495	1.67099336	58.98606562
2.70	2.80	5.50	52.00	5.862690823	2.421299408	1.612890694	56.93504151
2.10	2.20	4.30	46.00	4.58355828	2.140924632	1.424565505	50.28716231
1.20	1.30	2.50	39.00	2.664859465	1.632439728	1.083020814	38.23063474

Qstd
cfm

$$\text{Pa} / \text{Ta} * 295/765 = \underline{1.06594378606} = \text{C}$$

BEST FIT LINE:

$$1 / m = 1 / 1.48878 = \underline{0.671690915} = \text{D}$$

$$(Qstd m) \quad m = \frac{1.433834463}{\text{Slope}} \text{ b} + \underline{-17.05649019}$$

$$\text{Intercept} \quad \underline{0.996958226}$$

$$\text{correlation} =$$

1. Get readings. 2. Run a linear regression on Total VS CFM Is correlation better than 0.98?

3. Complete the remaining operations in the table above, which equal the following operation:

$$\text{Qstd} = 1 / m ((\text{SQRT} (\text{TOTAL}(\text{Pa} / 765) (295 / \text{Ta}))) - \text{b})$$

4. Run a linear regression on CFM vs Qstd. Use this equation of line for the calibration sheet.

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HIGH VOLUME (TSP) SAMPLER CALIBRATION

STATION NAME	OCF-V1		DATE	12/4/2009	
ORIFICE ID	207D		CALIBRATED BY:	Jen Rusher	
MOTOR NO.	1081809		NEW / REPAIRS ? New Brushes		

TEMPERATURE	6	C	279 K (Ta)	INSPECTION:	TRANSFORMER	<input checked="" type="checkbox"/>	
PRESSURE	29.85	in Hg	758 mm Hg (Pa)	TRANSDUCER	<input checked="" type="checkbox"/>		
				SHELTER	<input checked="" type="checkbox"/>	POWER CORD	<input checked="" type="checkbox"/>
				PLATFORM	<input checked="" type="checkbox"/>	TIMER	<input checked="" type="checkbox"/>

MANOMETER (2.8" - 6")		DICKSON	TOTAL *	SQUARE	(SQUARE ROOT	Last
LEFT	RIGHT	CFM	C	ROOT	-0.02006) * D	column *
3.50	3.60	7.10	54.50	7.44033994	2.727698653	1.818696283
3.20	3.30	6.50	52.75	6.811578818	2.609900155	1.739572103
2.90	3.00	5.90	50.75	6.182817696	2.486527236	1.656703634
2.50	2.60	5.10	48.00	5.344469534	2.311810878	1.539348243
2.00	2.10	4.10	44.00	4.296534331	2.07280832	1.378812397

Qstd
cfm

$$\text{Pa} / \text{Ta} * 295/765 = 1.04793520275 = C$$

BEST FIT LINE:

$$1 / m = 1 / 1.48878 = 0.671690915 = D$$

(Qstd m)

$$m = \frac{1.475972849}{\text{Slope}} b + \frac{-16.37872588}{\text{Intercept}}$$

$$\text{correlation} = 0.998265833$$

1. Get readings. 2. Run a linear regression on Total VS CFM Is correlation better than 0.98?

3. Complete the remaining operations in the table above, which equal the following operation:

$$\text{Qstd} = 1 / m ((\text{SQRT}(\text{TOTAL}(\text{Pa} / 765) (295 / \text{Ta}))) - b)$$

4. Run a linear regression on CFM vs Qstd. Use this equation of line for the calibration sheet.

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HIGH VOLUME (TSP) SAMPLER CALIBRATION

STATION NAME	South Gate		DATE	12/7/2009	
ORIFICE ID	207D		CALIBRATED BY:	Jen Rusher	
MOTOR NO.	1082609		NEW / REPAIRS ?		
			New Brushes		
TEMPERATURE	1	C	274 K (Ta)	INSPECTION:	
				TRANSFORMER	<input checked="" type="checkbox"/>
PRESSURE	29.71	in Hg	755 mm Hg (Pa)	TRANSDUCER	<input checked="" type="checkbox"/>
				SHELTER	<input checked="" type="checkbox"/>
				POWER CORD	<input checked="" type="checkbox"/>
				PLATFORM	<input checked="" type="checkbox"/>
				TIMER	<input checked="" type="checkbox"/>

MANOMETER (2.8" - 6")		DICKSON	TOTAL *	SQUARE	(SQUARE ROOT	Last
LEFT	RIGHT	CFM	C	ROOT	-0.02006) * D	column *
3.00	2.80	5.80	53.75	6.159910186	2.481916636	1.653606735
2.70	2.50	5.20	52.00	5.522678097	2.350037893	1.565024982
2.50	2.30	4.80	51.50	5.097856705	2.257843375	1.503098762
2.30	2.10	4.40	49.00	4.673035313	2.161720452	1.438533868
1.70	1.60	3.30	43.50	3.504776485	1.872104827	1.244001684

Qstd
cfm

$$\text{Pa/Ta} * 295/765 = 1.06205348027 = C$$

BEST FIT LINE:

$$1/m = 1/1.48878 = 0.671690915 = D$$

$$(Qstd m) \quad m = \frac{1.350560698}{\text{Slope}} b + \frac{-15.18638866}{\text{Intercept}}$$

$$\text{correlation} = 0.981180709$$

1. Get readings. 2. Run a linear regression on Total VS CFM Is correlation better than 0.98?

3. Complete the remaining operations in the table above, which equal the following operation:

$$\text{Qstd} = 1/m ((\text{SQRT}(\text{TOTAL}(\text{Pa} / 765) (295 / \text{Ta}))) - b)$$

4. Run a linear regression on CFM vs Qstd. Use this equation of line for the calibration sheet.

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Appendix C

ORIFICE TRANSFER STANDARD CERTIFICATE


 Shawnee Instruments
 607 Laurelwood Dr.
 Cleves, Ohio 45002
 513-467-9825

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5028A

Date - Sep 21, 2009 Rootsometer S/N 9833620 Ta (K) - 296
 Operator Tisch Orifice I.D. - 67G Pa (mm) - 753.11

PLATE OR VDC #	VOLUME START (m ³)	VOLUME STOP (m ³)	DIFF VOLUME (m ³)	DIFF TIME (min)	METER	ORIFICE
					DIFF Hg (mm)	DIFF H ₂ O (in.)
1	NA	NA	1.00	1.2170	4.4	1.50
2	NA	NA	1.00	0.9420	7.3	2.50
3	NA	NA	1.00	0.8560	8.8	3.00
4	NA	NA	1.00	0.7960	10.1	3.50
5	NA	NA	1.00	0.6010	17.5	6.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9918	0.8149	1.2233		0.9941	0.8169	0.7678
0.9879	1.0488	1.5793		0.9903	1.0513	0.9913
0.9860	1.1518	1.7300		0.9883	1.1546	1.0859
0.9842	1.2365	1.8686		0.9866	1.2394	1.1729
0.9744	1.6214	2.4466		0.9768	1.6253	1.5357

Qstd slope (m) = 1.51767 Qa slope (m) = 0.95034
 intercept (b) = -0.01330 intercept (b) = -0.00835
 coefficient (r) = 0.99993 coefficient (r) = 0.99993

$$y \text{ axis} = \text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$$

$$y \text{ axis} = \text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$$

CALCULATIONS

$$\begin{aligned} V_{\text{std}} &= \text{Diff. Vol}[(\text{Pa}-\text{Diff. Hg})/760](298/\text{Ta}) \\ Q_{\text{std}} &= V_{\text{std}}/\text{Time} \end{aligned}$$

$$\begin{aligned} V_a &= \text{Diff Vol } [(\text{Pa}-\text{Diff Hg})/\text{Pa}] \\ Q_a &= V_a/\text{Time} \end{aligned}$$

For subsequent flow rate calculations:

$$\begin{aligned} Q_{\text{std}} &= 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))] - b \} \\ Q_a &= 1/m \{ [\text{SQRT H}_2\text{O}(\text{Ta}/\text{Pa})] - b \} \end{aligned}$$